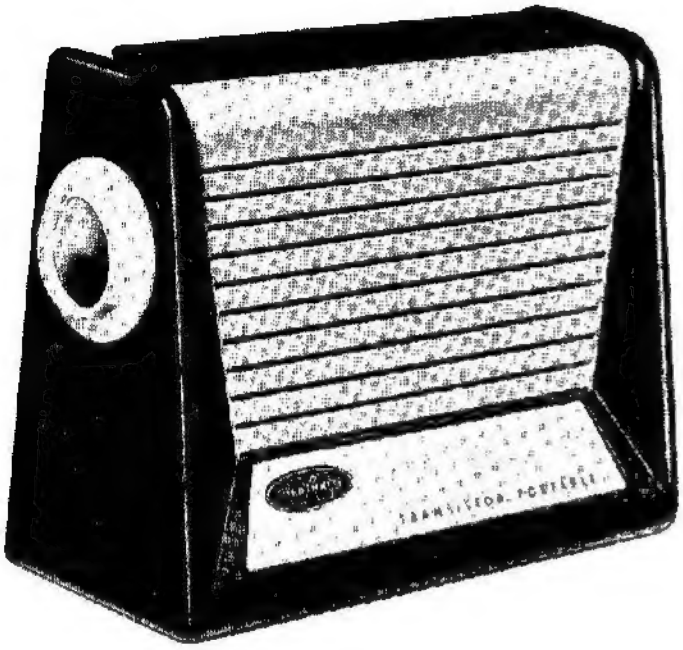
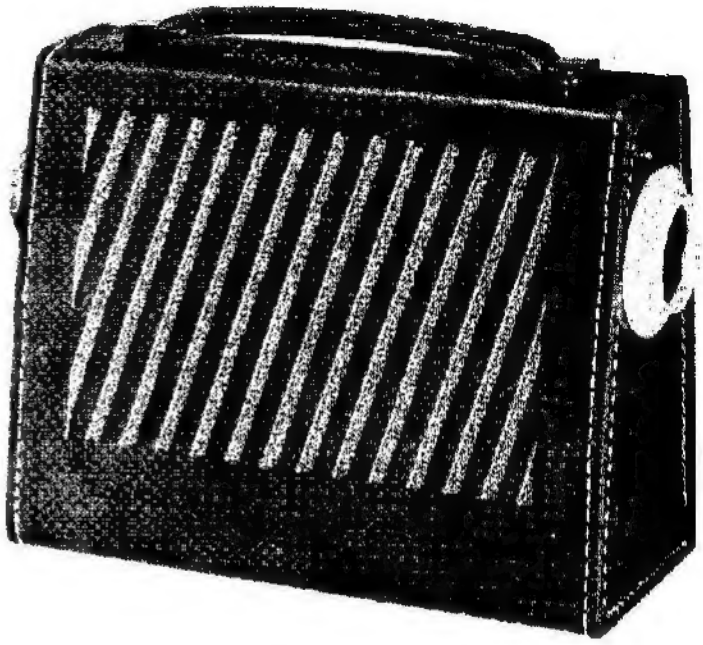
ASSEMBLY AND OPERATION OF THE HEATHKIT TRANSISTOR RECEIVER

MODEL XR-1P AND MODEL XR-1L





INSTRUMENT DESCRIPTION

These models are 6-transistor superheterodyne receivers for reception of the broadcast band. The XR-1L case is made of genuine leather with a formed leather handle. A matching shoulder strap is also included. It is supplied in a smart Suntan color with embossed lettering.

The XR-1P cabinet is molded of a high impact plastic: the attractive two-tone blue color scheme is enhanced by a gold inlay. A retractable handle is provided for carrying convenience.

The circuit features 6 transistors plus 2 diodes. Excellent tone and volume are provided by an extra-large 4" x 6" loudspeaker and a Class B push-pull output amplifier. Power is supplied by 6 size "D" flashlight cells chosen for their economy and ready availability.

SPECIFICATIONS

Tuning Range:	538-1680 kilocycles.
Sensitivity:	400-500 μv/m for 50 mw output.
Size (both):	9 1/2" L x 7 1/4" H x 4" D.
Loudspeaker:	4" x 6", 1.47 oz. magnet.
Batteries:	6 size "D" flashlight cells (not included).
Battery Life:	500-1000 hours average use.
Transistors:	6; 1-2N252 1-2N253 1-2N254 1-2N238 2-2N185 2 diodes
Weight with Batteries: (both)	4 3/4 pounds
Shipping Weight: (both)	6 pounds

(✓) Straighten the leads on each transistor, if necessary, so that they extend straight away from the body. Now install each transistor in its proper socket, using Pictorial 5 as a guide. Observe the spacing of the leads and socket holes and press in with straight and steady pressure. Long-nose pliers may prove useful in confined spaces.

ADJUSTMENT PROCEDURE

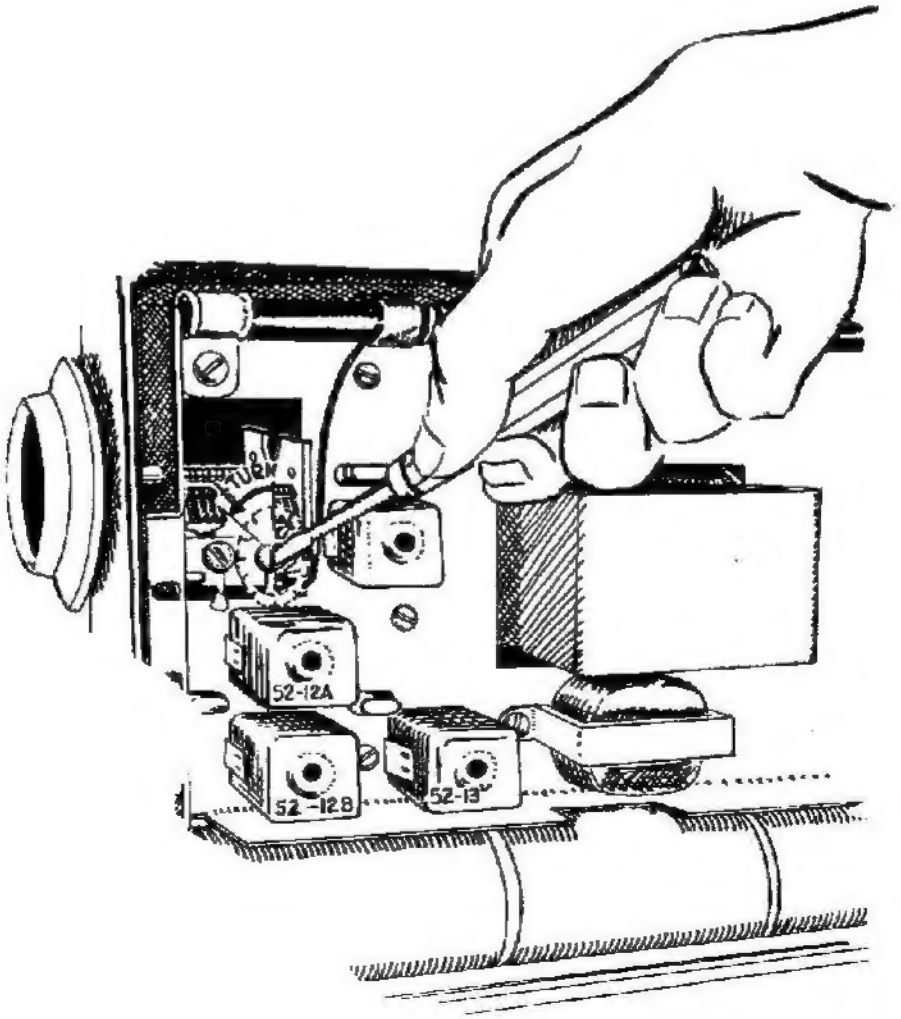
Double check the installation of batteries and transistors before attempting to operate your XR-1 Transistor Receiver. Errors could cause non-operation or damage to components in the receiver. When reasonably sure that no errors exist, turn on the receiver by rotating the VOLUME knob to the right until a "click" is heard. Advance the control until a slight rushing sound or static is heard. If no sound is heard, turn the receiver off and refer to the section "In Case of Difficulty." If operation appears normal, you may proceed with the adjustments required to obtain maximum performance.

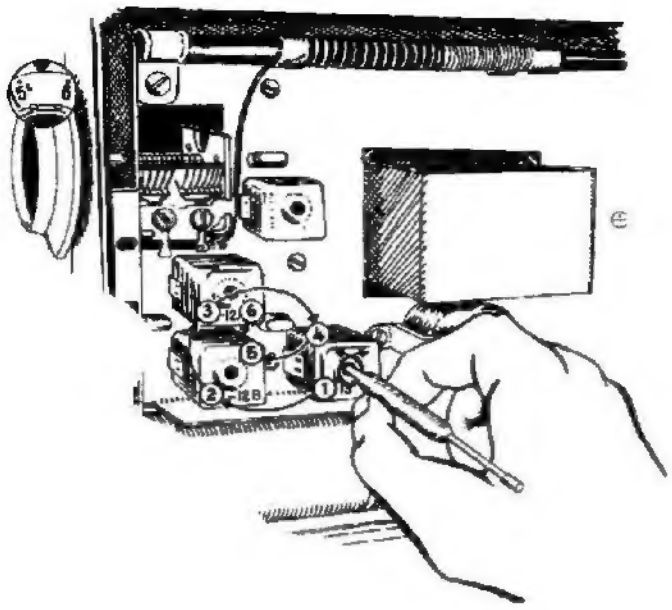
Read each step completely before performing the operations described.

STEP ONE

A. Turn BOTH adjusting screws on the variable capacitor down snugly without forcing.

B. Loosen EACH screw about 1/8 turn.





STEP TWO

This procedure will adjust the I. F. amplifiers for maximum gain.

A. Tune in any station near the low frequency end of the dial.

B. Using the tool provided, carefully turn the internal adjustment of transformer 52-13 left or right to obtain maximum volume. Now adjust 52-12B and 52-12A in a similar manner. Repeat the procedure.

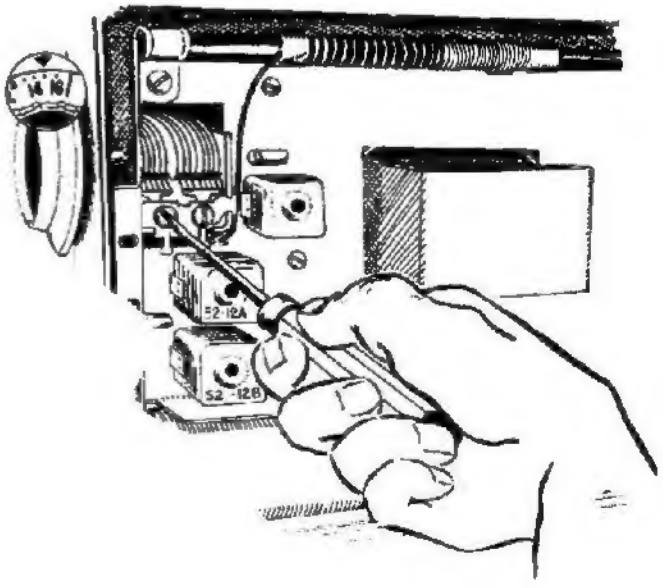
STEP THREE

This step will adjust the oscillator circuit so that the dial will indicate properly the station frequencies.

A. Set the dial to the FREQUENCY of a station in your location broadcasting on the high frequency end of the dial, 1400 KC or higher if possible. Refer to the radio column of your newspaper to ascertain the correct frequency and broadcasting schedule. *

B. Adjust the screw nearest the panel end of the variable capacitor to receive the reference station. This adjustment is critical and must be done very carefully. Do not disturb the dial setting while performing this step. Another operating radio may prove helpful in identifying the chosen station as several stations will probably appear while turning the screw.

* The illustration has assumed a station frequency of 1500 KC. Be sure to set the dial to the frequency of your own local station.

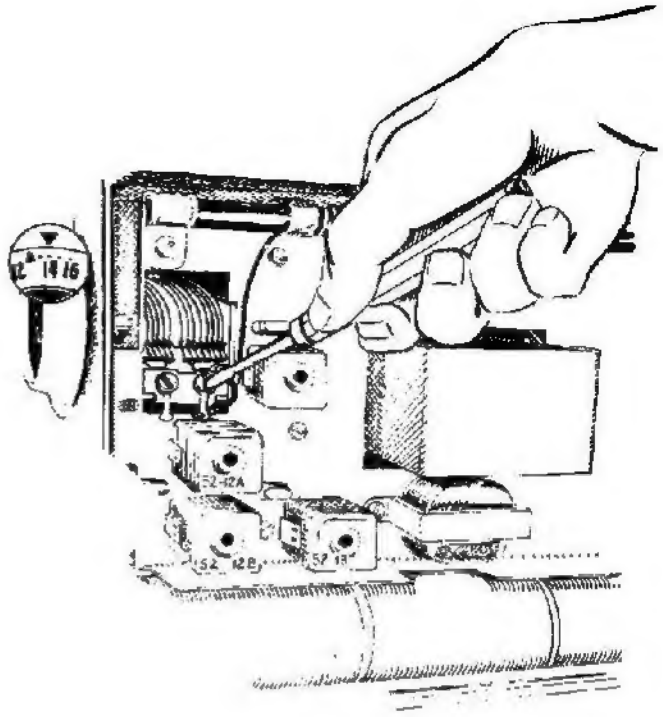


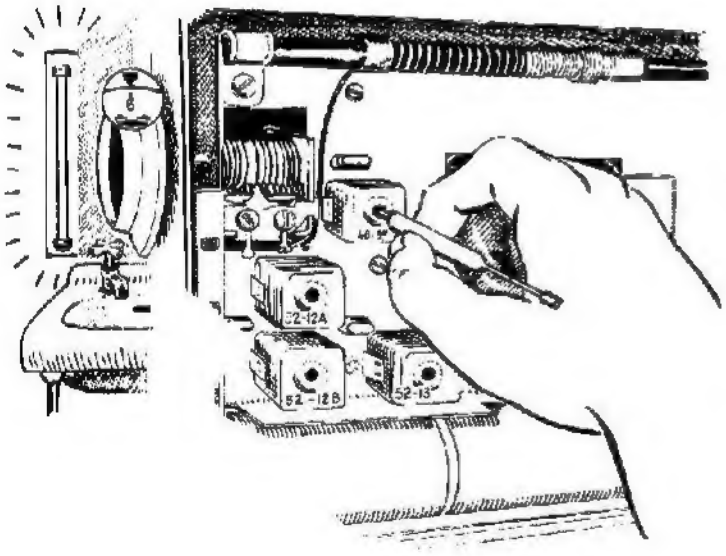
STEP FOUR

This step will adjust the signal and oscillator circuits to 455 KC separation at the high frequency end of the dial.

A. Tune in a weak station in the vicinity of 1400 kilocycles.

B. Adjust the screw on the large section of the variable capacitor to obtain maximum volume.





STEP FIVE

This step will adjust the signal and oscillator circuits to 455 KC separation at the low frequency end of the dial.

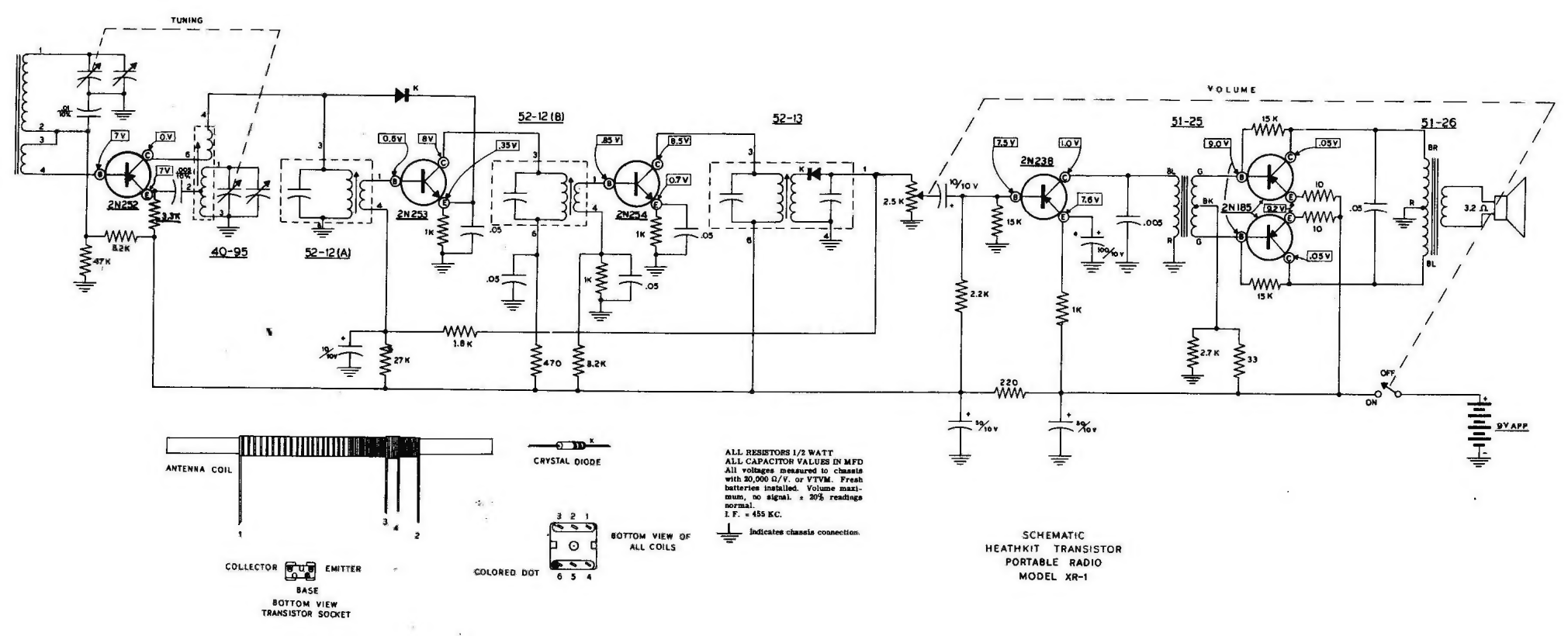
A. Turn on a source of "noise" such as a fluorescent lamp, electric shaver or a mixer.

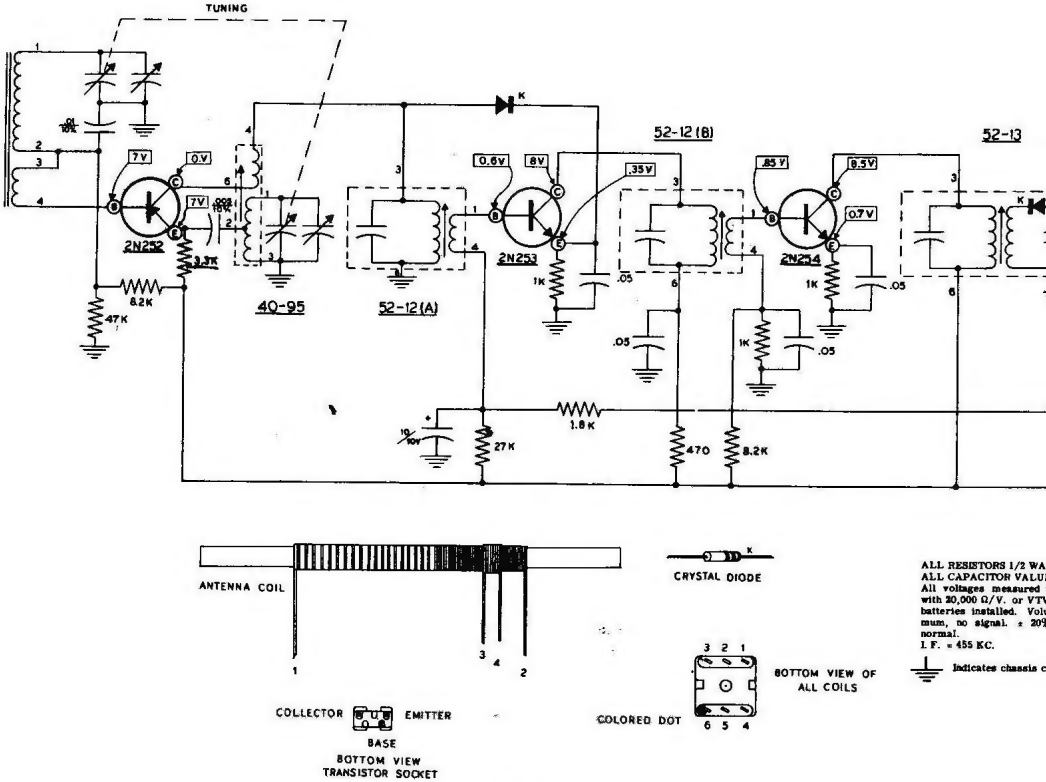
B. Place the receiver near the noise source so that the static will be heard. Tune the dial to approximately 600 KC but not to a station.

C. Adjust oscillator coil 40-95 to obtain maximum noise volume. If a station should appear during this adjustment, slightly retune the dial so that only the noise will be heard. Make the adjustment with the dial as close to 600 KC as possible without interference from a station.

STEP SIX

Since the adjustments tend to interact slightly, repeat Steps 3, 4, and 5 to obtain best results.


TUNING
VOLUME
40-95
52-12(A)
52-12(B)
52-13
51-25
51-26
2N252
2N253
2N254
2N238
2N185
7V
0V
0.6V
8V
.35V
.85V
9.5V
0.7V
7.5V
1.0V
7.6V
9.0V
9.2V
.05V
10V
2.5K
15K
8.2K
47K
3.3K
1K
.05
27K
1.8K
470
2.2K
.005
100/10V
2.7K
33
220
50/10V
10
3.2Ω
OFF
ON
9V APP
ANTENNA COIL
CRYSTAL DIODE
COLLECTOR
EMITTER
BASE
BOTTOM VIEW
TRANSISTOR SOCKET
COLORED DOT
BOTTOM VIEW OF
ALL COILS
ALL RESISTORS 1/2 WATT
ALL CAPACITOR VALUES IN MFD
All voltages measured to chassis with 20,000 Ω/V. or VTVM. Fresh batteries installed. Volume maximum, no signal. ± 20% readings normal.
I.F. = 455 KC.
Indicates chassis connection.
SCHEMATIC
HEATHKIT TRANSISTOR
PORTABLE RADIO
MODEL XR-1


TUNING
2N252
2N253
2N254
40-95
52-12(A)
52-12(B)
52-13
7V
0V
0.6V
8V
.35V
.85V
9.5V
0.7V
3.3K
8.2K
47K
1K
.05
27K
1.8K
470
ANTENNA COIL
CRYSTAL DIODE
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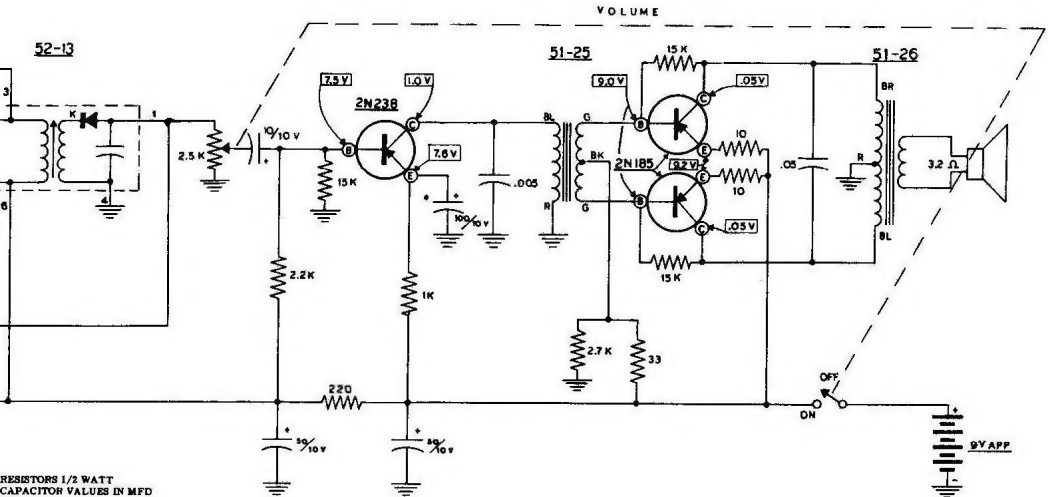

RESISTORS 1/2 WATT
CAPACITOR VALUES IN MFD
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no signal. ± 20% readings
al.
= 455 KC.

Indicates chassis connection.

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HEATHKIT TRANSISTOR
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